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ABSTRACT

The study was conducted to determine if the Air Force has been able to sustain the quality of its force during 1973-74 as compared to 1972, the last year of the Selective Service Draft Lottery System. Data were collected on male and female non-prior service basic trainees who enlisted in the Air Force in 1972 (4,688 females and 81,563 males), 1973 (7,691 females and 71,762 males), and 1974 (8,952 females and 64,405 males). Data were collected on the following: year of birth; aptitude scores (Airman Qualifying Examination, Armed Services Vocational Aptitude Battery, and Armed Forces Qualification Test); years of education completed; geographic area of enlistment; and racial subgroup membership. An analysis of the data is presented with supporting tables. Discussion of the findings cover: (1) the Air Force is an equal opportunity employer, (2) the Air Force is enlisting young individuals who are less talented than older enlistees, (3) a moderate gain in the distribution of educational level existed during 1973-74, (4) the removal of draft pressure has not adversely affected the quality of enlistees, and (5) a deviation from the 1972 geographic pattern of aptitude levels appeared. A list of references is included. (Author/EC)

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# AIR FORCE HUMAN RESOURCES LABORATORY

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## COMPARISON OF ENLISTED AIR FORCE ACCESSIONS 1972 – 1974

By

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May 1976

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Analyses of the 1972 through 1974 accessions lead to the following conclusions: (a) compared to the 1972 accessions, there has been an increase in average aptitudes of the 1973 and 1974 accessions in the Electronics aptitude area along with a moderate decrease in Administrative aptitudes, (b) in the post-draft period, Air Force enlisted a greater percentage of young men and women with 12 or more years of education than were enlisted in 1972, (c) for the male population, there was a significant decrease in the percentage of enlistees with education beyond high school, (d) for females, no change in level of education beyond high school from 1972 to 1974 was noted, (e) the aptitude levels of Black enlistees in 1973–1974 are equal to or higher than the aptitudes of Blacks enlisting in 1972, (f) there has been a deviation from the 1972 pattern of aptitude levels by geographic area to the

Item 20 Continued:

extent that Areas 3 and 4 (South and Southwest) do not consistently fall at the lowest end of the geographic aptitude spectrum, (g) Air Force continues to enlist a proportion of Blacks equal to, or greater than, the proportion of Blacks found in the general population, and (h) the all-volunteer Air Force has not created a "man-drain" of skills from the civilian manpower pool. Enlistment is from the mid-range portion of the aptitude spectrum with a return, four years hence to the civilian sector of thousands of skilled personnel in over 200 job types.

## PREFACE

The work reported in this study was accomplished under Project AFSD, Air Force Personnel System Development on Selection, Assignment, Evaluation, Quality Control, Retention, Promotion, and Utilization; Task AFSD 10, Air Force Systems Command Directed Special Efforts.

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# COMPARISON OF ENLISTED AIR FORCE ACCESSIONS, 1972 – 1974

## I. INTRODUCTION

As of 1 January 1973, the United States Air Force became an all-volunteer force. The Air Force has never conscripted men to fill first-term personnel needs, but it has been generally accepted by personnel planners that draft-pressure associated with the Selective Service System accounted for a large percentage of Air Force enlistments. The termination of the draft and conscription of 18 through 26-year-old men into the Armed Services was viewed by some as the removal of draft-pressure as a motivator for enlistment.

Prior to a zero-draft force becoming a reality, studies were done to predict the quality and quantity of men most likely to enlist in the military forces in the absence of the draft (Cook, 1970; Haus & Fischer, 1968; Saber Volunteer, 1971; Vitola & Brokaw, 1973; Vitola & Valentine, 1971). The theme of these studies centered around the need for enlistment incentives, the magnitude of difficulty recruiters would experience in procuring high aptitude people, and the gradual erosion of enlistment of high-aptitude personnel.

In addition to these studies, a presidential commission (Gates, 1970), chaired by a former Secretary of Defense, Mr. Thomas S. Gates, predicted the racial composition of an all-volunteer military force. Subsequent research done by Vitola, Mullins, and Brokaw (1974) characterizing 1973 first-term accessions supported the predictions and estimates made by investigators during the pre-volunteer force period.

One conclusion of the all-volunteer force studies indicated the feasibility of expanded utilization of women in career fields which were predominately occupied by males. Further studies (Vitola, Mullins, & Weeks, 1974) compared male and female performance on Air Force selection measures and sampled the attitudes of 1973 female enlistees. The aptitude potential of female personnel as shown by accession data supported the Air Force decision to recruit women for entrance into mechanical and electronics career fields. In fact, recruitment of female personnel for mechanical and electronics jobs increased so significantly that by 1974, 50 percent of incoming female accessions were assigned to mechanical and electronics jobs; 25 percent were assigned to the mechanical area, and 25 percent to the electronics area.

It is the purpose of this investigation to determine if Air Force has been able to sustain the quality of its force for the 1973–1974 time period that it maintained in calendar year 1972, the last year of the Selective Service Draft Lottery System. Data are presented on the 1973 and 1974 male and female accessions depicting the dimensions of aptitude, race, age, education, and geographical area of enlistment. These zero-draft force data are compared with pre-volunteer force data from calendar year 1972.

## II. METHOD

Data were collected on male and female non-prior service basic trainees who enlisted in the Air Force in 1972 (females: N = 4,688, males: N = 81,563); 1973 (females: N = 7,691, males: N = 71,762); and 1974 (females: N = 8,952, males: N = 64,405). Source of the data was the Processing and Classification of Enlistees (PACE) files of information provided to the Computational Sciences Division of the Air Force Human Resources Laboratory by Air Training Command. Data on the enlistees included year of birth, and Airman Qualifying Examination (AQE) or Armed Services Vocational Aptitude Battery (ASVAB) aptitude indexes. In addition, Armed Forces Qualification Test (AFQT) scores were obtained for men from 1972 through 1974, for women in 1974 only. In the 1972–1973 time period, Congressional law required all male enlistees to take the AFQT and all female enlistees to be given the Armed Forces Women's Selection Test (AFWST). In 1974, both men and women were given the ASVAB which replaced the AQE for males and females and replaced the AFWST for females only. An AFQT for males and females is derived from three of the ASVAB subtests: Word Knowledge, Arithmetic Reasoning, and Space Perception.

The AQE and the ASVAB may be considered equivalent to the extent that (a) both yield four aptitude composites: Mechanical, Administrative, General, and Electronics, (b) both have separate five centile interval indexes (01, 05, 10 . . 95) which are developed so that five percent of the normative sample falls within each of the 20 intervals of the scale, (c) both are normed against the same Project Talent

reference tests (Daily, Shaycoft, & Orr, 1962), and (d) both tests' aptitude composites are equally effective in predicting the probability of technical school success for courses in the Mechanical, Administrative, General, and Electronics areas (Vitola, Mullins, & Croll, 1973).

In addition to date of birth and aptitude scores, years of education completed, geographic area of enlistment, and racial subgroup membership data were obtained.

Means and standard deviations for the three yearly groups were computed on the four AQE and ASVAB composites. Score distributions for accessions in each year were obtained for each of four levels of education: 16 or more years completed, 13 through 15 years, 12 years, and 11 years or less. Each yearly group, males and females separately, was divided into Black and non-Black racial subgroups. Various comparisons were made on aptitude level, education completed, age, and geographic area of enlistment.

## III. RESULTS AND DISCUSSION

### Accession by Racial Subgroup

During the 1972 through 1974 period of economic recession and rising rate of unemployment, some social action groups suggested that the military was in a "buyers market posture" and under the all-volunteer force concept would select only the most talented applicants for enlistment. It was further suggested that the accepted applicant population would contain a smaller percentage of Blacks than the proportion they represent in the population-at-large (11.8%).

The data shown in Tables 1, 2, and 3 do not lend support to either suggestion. It becomes evident, after inspecting the data of Table 1, that Air Force enlisted an increasing proportion of Blacks in the all-volunteer force. Regardless of sex, the proportion of Blacks enlisted in the Air Force in 1973 and 1974 was greater than the proportion that Blacks represent in the population-at-large.

*Table 1.* **Distribution of Air Force Enlistees by Racial Subgroup and Sex, 1972–1974**

| Enlistment Year | Number and Percent for Racial Subgroup | | | | Combined Groups |
|---|---|---|---|---|---|
| | Black | | Non-Black | | |
| | N | % | N | % | N |
| **Males** | | | | | |
| 1972 | 10,475 | 13 | 71,088 | 87 | 81,563 |
| 1973 | 10,985 | 15 | 60,777 | 85 | 71,762 |
| 1974 | 11,375 | 18 | 53,030 | 82 | 64,405 |
| Total | 32,835 | 15 | 184,895 | 85 | 217,730 |
| **Females** | | | | | |
| 1972 | 629 | 13 | 4,059 | 87 | 4,688 |
| 1973 | 1,196 | 16 | 6,495 | 84 | 7,691 |
| 1974 | 1,549 | 17 | 7,403 | 83 | 8,952 |
| Total | 3,374 | 16 | 17,957 | 84 | 21,331 |
| **Total Accessions** | | | | | |
| 1972 | 11,104 | 13 | 75,147 | 87 | 86,251 |
| 1973 | 12.181 | 15 | 67,272 | 85 | 79,453 |
| 1974 | 12,924 | 18 | 60,433 | 82 | 73,357 |
| Total | 36,209 | 15 | 202,852 | 85 | 239,061 |

*Table 2.* **Average AQE/ASVAB General and Electronics Aptitude Indexes for Male Enlistees by Age and Racial Subgroup,[a] 1973 – 1974**

| | Proportion and Aptitude Index for Racial Subgroups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1973 | | | | | | 1974 | | | | | |
| | Black (N = 10,985) | | | Non-Black (N = 60,777) | | | Black (N = 11,375) | | | Non-Black (N = 53,030) | | |
| Age | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean |
| 17 | 3 | 50 | 47 | 4 | 55 | 59 | 2 | 58 | 52 | 4 | 62 | 64 |
| 18 | 26 | 51 | 48 | 29 | 59 | 62 | 25 | 58 | 53 | 28 | 66 | 66 |
| 19 | 28 | 51 | 49 | 29 | 60 | 64 | 29 | 58 | 54 | 31 | 66 | 67 |
| 20 | 20 | 52 | 51 | 18 | 60 | 64 | 18 | 58 | 54 | 17 | 66 | 67 |
| 21 | 11 | 54 | 51 | 9 | 62 | 66 | 11 | 60 | 55 | 8 | 69 | 69 |
| 22 | 6 | 54 | 52 | 5 | 65 | 68 | 6 | 62 | 56 | 5 | 70 | 70 |
| 23 | 3 | 55 | 52 | 3 | 69 | 71 | 4 | 63 | 56 | 3 | 72 | 73 |
| 24+ | 3 | 56 | 51 | 3 | 67 | 69 | 5 | 64 | 57 | 4 | 73 | 73 |
| Total | 100 | 52 | 48 | 100 | 60 | 64 | 100 | 59 | 54 | 100 | 67 | 67 |

[a]Means have been rounded to nearest whole number.

*Table 3.* Average AQE/ASVAB General and Electronics Aptitude Index for Female Enlistees by Age and Racial Subgroups,[a] 1973 – 1974

| | Proportion and Aptitude Index for Racial Subgroup | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1973 | | | | | | 1974 | | | | | |
| | Black (N = 1,196) | | | Non-Black (N = 6,495) | | | Black (N = 1,549) | | | NonBlack (N = 7,403) | | |
| Age | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean | % | Gen Mean | Elec Mean |
| 18 | 19 | 56 | 42 | 20 | 64 | 53 | 13 | 60 | 46 | 19 | 68 | 57 |
| 19 | 26 | 56 | 42 | 28 | 65 | 55 | 25 | 61 | 46 | 28 | 69 | 57 |
| 20 | 18 | 57 | 41 | 18 | 66 | 56 | 20 | 63 | 47 | 15 | 70 | 58 |
| 21 | 12 | 59 | 43 | 11 | 68 | 56 | 12 | 64 | 48 | 11 | 71 | 60 |
| 22 | 8 | 59 | 43 | 8 | 68 | 56 | 9 | 65 | 49 | 8 | 72 | 62 |
| 23 | 6 | 58 | 40 | 5 | 69 | 57 | 6 | 65 | 52 | 6 | 75 | 64 |
| 24+ | 11 | 59 | 43 | 10 | 70 | 57 | 15 | 65 | 51 | 13 | 73 | 63 |
| Total | 100 | 57 | 42 | 100 | 66 | 55 | 100 | 63 | 48 | 100 | 70 | 60 |

[a]Means have been rounded to nearest whole number.

The distributions of Tables 2 and 3 present data showing the age, race, and average aptitude scores made by 1973 and 1974 enlistees on the General and Electronics composites of the Air Force selection test. The General and Electronics areas are the areas for which the majority of high-aptitude personnel are recruited. Analysis of Tables 2 and 3 data strongly suggest that Air Force is not selecting only the most talented applicants for enlistment. On the contrary, regardless of race or sex, the average aptitude score for a majority of the all-volunteer force enlistees indicates a considerable number of accesssions were selected from the mid-range segment of the aptitude spectrum. These enlistees also are the younger enlistees (17 through 19 for males, 18 through 20 for females) who apparently offer relatively less skill to the labor market. Department of Labor statistics support the hypothesis that for males and females, Blacks and non-Blacks, the younger the individual is in the age range of 17 through 24 years of age, the greater the percentage of seasonally adjusted unemployment rate (Department of Labor, 1974). Based on the data of Tables 1 through 3, it is concluded that Air Force has been and continues to be an equal opportunity employer. Further, regardless of opportunity, Air Force did not recruit only those men and women displaying high potential but did in actuality recruit a majority from the mid-range of the aptitude scale. In their continuing effort to cooperate with the civilian community, Air Force planners of the all-volunteer force have not permitted a qualitative selection ratio that would leave the civilian sector a manpower pool of low-potential personnel.

**AFQT Performance**

Currently, the Department of Defense requires that all individuals wishing to enlist in the military service demonstrate a proficiency on the AFQT. This test yields a centile score (01, 02, 03 . . .99) which is then translated into a mental ability level designated Category I (93–99), Category II (65–92), Category III (31–64), and Category IV (10–30). Table 4 shows percentage distributions of AFQT categories for 1972 through 1974 male enlistees and 1974 female enlistees.

*Table 4.* **Distribution of AFQT Mental Categories for Air Force Enlistees, 1972 – 1974**

| Mental Ability Category | Range of Scores | 1972 | | 1973 | | 1974 | |
|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % |
| | | | **Males** | | | | |
| I | 93–99 | 4,652 | 6 | 3,563 | 5 | 2,294 | 4 |
| II | 65–92 | 31,933 | 39 | 28,031 | 39 | 24,248 | 38 |
| III | 31–64 | 40,822 | 50 | 38,177 | 53 | 37,138 | 58 |
| IV | 10–30 | 3,663 | 4 | 1,773 | 2 | 340 | 0 |
| Incomplete Data | | 493 | 1 | 218 | 0 | 385 | 0 |
| Total | | 81,563 | 100 | 71,762 | 100 | 64,405 | 100 |
| | | | **Females*** | | | | |
| I | 93–99 | | | | | 364 | 4 |
| II | 65–92 | | | | | 3,423 | 38 |
| III | 31–64 | | | | | 5,079 | 57 |
| IV | 10–30 | | | | | 13 | 0 |
| Incomplete Data | | | | | | 73 | 1 |
| Total | | | | | | 8,952 | 100 |

*In 1972–1973 females were administered the AFWST. Males were administered the AFQT. In 1974, both males and females were administered the ASVAB from which an AFQT score is derived.

The data in Table 4 appear to indicate that, in a non-draft posture, Air Force was not able to procure the same proportion of Category I male personnel as it did in 1972. The decline in Category I personnel is offset by the enlistment of less than one percent Category IV personnel. Previously documented evidence (Grunzke, Guinn, & Stauffer, 1970) has shown that, regardless of race, AFQT Category IV personnel with less than 12 years of education are much less adaptable to Air Force life than their contemporaries who were Category I, II, and III with a high school education. Since the majority of Category IV enlistees have less than a high school education, the trade-off of two percent loss of Category I personnel versus about four percent loss of Category IV personnel may be viewed as a cost-effective qualitative gain. The data from Table 4 also indicate that the mental abilities potential of 1974 females is almost identical to those of their male counterparts. In fact, the average female score on the AFQT is slightly higher than the average male score (see Tables 5 and 6). Overall, it does not appear that Air Force has experienced an appreciable loss of mental ability potential in the transfer from a draft-induced population to one of all-volunteer.

### AQE and ASVAB Performance

Tables 5 through 7 show average AQE and ASVAB and AFQT scores for 1972 through 1974 male and female enlistees. Tables 5 and 6 further delineate the three-year populations by racial subgroups, Black and non-Black.

*Table 5.* **Descriptive Statistics of AQE/ASVAB and AFQT Scores for Male Enlistees by Racial Subgroup,[a] 1972 – 1974**

| Selection Measure | Mean and SD on Selection Measure | | | | | |
|---|---|---|---|---|---|---|
| | 1972 | | 1973 | | 1974 | |
| | Mean | SD | Mean | SD | Mean | SD |
| **Black** | | | | | | |
| AFQT Score | 43 | 16 | 47 | 16 | 50 | 15 |
| AQE ASVAB Mechanical | 44 | 18 | 46 | 18 | 48 | 18 |
| AQE/ASVAB Administrative | 46 | 19 | 46 | 19 | 48 | 19 |
| AQE/ASVAB General | 51 | 16 | 51 | 16 | 51 | 17 |
| AQE/ASVAB Electronics | 47 | 18 | 48 | 18 | 54 | 16 |
| **Non-Black** | | | | | | |
| AFQT Score | 64 | 20 | 64 | 19 | 64 | 18 |
| AQE/ASVAB Mechanical | 62 | 20 | 62 | 20 | 62 | 20 |
| AQE/ASVAB Administrative | 58 | 21 | 54 | 20 | 55 | 20 |
| AQE/ASVAB General | 63 | 18 | 60 | 18 | 66 | 18 |
| AQE/ASVAB Electronics | 65 | 20 | 64 | 19 | 67 | 18 |
| **Total Sample** | | | | | | |
| AFQT Score | 62 | 21 | 62 | 18 | 60 | 18 |
| AQE/ASVAB Mechanical | 60 | 20 | 60 | 20 | 60 | 21 |
| AQE/ASVAB Administrative | 56 | 21 | 52 | 20 | 53 | 20 |
| AQE/ASVAB General | 62 | 18 | 59 | 19 | 65 | 18 |
| AQE/ASVAB Electronics | 63 | 20 | 62 | 20 | 65 | 18 |

[a]Means and standard deviations have been rounded to the nearest whole number.

*Table 6.* Descriptive Statistics of AQE/ASVAB and AFWST/AFQT Scores for Female Enlistees by Racial Subgroup,[a] 1972 – 1974

| Selection Measure | Mean and SD on Selection Measure | | | | | |
|---|---|---|---|---|---|---|
| | 1972 | | 1973 | | 1974 | |
| | Mean | SD | Mean | SD | Mean | SD |
| **Black** | | | | | | |
| AFWST/AFQT Score[b] | 58 | 9 | 56 | 19 | 53 | 14 |
| AQE/ASVAB Mechanical | 29 | 16 | 32 | 18 | 27 | 18 |
| AQE/ASVAB Administrative | 63 | 12 | 59 | 15 | 59 | 18 |
| AQE/ASVAB General | 63 | 11 | 57 | 14 | 63 | 15 |
| AQE/ASVAB Electronics | 42 | 16 | 42 | 17 | 48 | 17 |
| **Non-Black** | | | | | | |
| AFWST/AFQT Score[b] | 63 | 12 | 63 | 13 | 64 | 17 |
| AQE/ASVAB Mechanical | 37 | 19 | 41 | 19 | 34 | 17 |
| AQE/ASVAB Administrative | 69 | 14 | 65 | 16 | 68 | 17 |
| AQE/ASVAB General | 70 | 13 | 66 | 15 | 70 | 16 |
| AQE/ASVAB Electronics | 53 | 18 | 55 | 19 | 59 | 18 |
| **Total Sample** | | | | | | |
| AFWST/AFQT Score[b] | 63 | 12 | 62 | 13 | 62 | 17 |
| AQE/ASVAB Mechanical | 36 | 19 | 39 | 19 | 33 | 18 |
| AQE/ASVAB Administrative | 68 | 14 | 64 | 16 | 67 | 17 |
| AQE/ASVAB General | 69 | 13 | 65 | 15 | 69 | 16 |
| AQE/ASVAB Electronics | 52 | 18 | 53 | 19 | 57 | 18 |

[a]Means and standard deviations have been rounded to the nearest whole number.

[b]In 1972–1973, women were not tested with the AFQT. In 1974, both males and females were given the ASVAB from which an AFQT score is derived.

Inspection of the average performance of 1972–1974 Black male enlistees leads to the conclusion that in every instance and on every measure, the mental ability level and aptitude potential of Blacks in the all-volunteer force was equal to or greater than the mental ability level and aptitude potential of Blacks enlisting prior to the all-volunteer force. In 1972, the average Black scored a 43 on the AFQT. By 1974, the average score was 50, a gain of some practical significance. In the two areas of critical assignment, General and Electronics, the average aptitude scores of Blacks increased significantly. In the Mechanical and Administrative areas, average scores remained almost constant for the 1972–1974 time period.

In the all-volunteer force (Blacks and non-Blacks), differences in mean performance has decreased, especially in the critical assignment areas of General and Electronics. In 1972 (pre-volunteer), the mean difference for the Mechanical, Administrative, General, and Electronics indexes for Blacks and non-Blacks was 18, 12, 12, and 18 centile points, respectively. In 1974, the mean differences for the Mechanical, Administrative, General, and Electronics indexes for Blacks and non-Blacks was 18, 9, 7, and 13, respectively. The implication of this trend is that without benefit of draft pressure, all-volunteer force Blacks have demonstrated appreciable gains in average aptitude levels in the General and Electronics areas, which permits Air Force more flexibility for assignment of Blacks to the critical specialties within these areas.

The same pattern was not evidenced for male non-Blacks. Mental and Mechanical ability level remained constant for the 1972–1974 time period. A moderate loss of aptitude potential was experienced in the Administrative area and moderate gains were made in the General and Electronics areas. Inspection of the total sample leads to the conclusion that the termination of the draft has had little, if any, detrimental effect on the overall quality of the male accessions of the all-volunteer Air Force.

*Table 7.* **AQE/ASVAB Aptitude Indexes for Air Force Enlistees, 1972 – 1974**

| AQE/ ASVAB Centile | Aptitude Composite Percentage by Year and Sex | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1972 (N = 81,563) | | | | 1973 (N = 71,762) | | | | 1974 (N = 64,405) | | | |
| | Mech % | Admin % | Gen % | Elec % | Mech % | Admin % | Gen % | Elec % | Mech % | Admin % | Gen % | Elec % |
| **Males** | | | | | | | | | | | | |
| 95 | 5 | 5 | 6 | 8 | 4 | 3 | 5 | 5 | 4 | 2 | 6 | 6 |
| 90 | 7 | 3 | 4 | 6 | 6 | 2 | 3 | 5 | 7 | 3 | 5 | 6 |
| 85 | 6 | 5 | 6 | 7 | 7 | 4 | 4 | 7 | 8 | 3 | 9 | 9 |
| 80 | 5 | 5 | 7 | 10 | 5 | 3 | 6 | 8 | 5 | 4 | 8 | 9 |
| 75 | 6 | 5 | 6 | 5 | 6 | 5 | 4 | 6 | 6 | 6 | 8 | 7 |
| 70 | 7 | 7 | 8 | 5 | 5 | 6 | 8 | 6 | 7 | 7 | 12 | 8 |
| 65 | 6 | 8 | 10 | 7 | 6 | 7 | 9 | 6 | 8 | 6 | 10 | 10 |
| 60 | 13 | 10 | 12 | 10 | 14 | 11 | 11 | 10 | 11 | 9 | 9 | 9 |
| 55 | 12 | 8 | 8 | 11 | 12 | 7 | 8 | 13 | 9 | 9 | 9 | 11 |
| 50 | 10 | 9 | 8 | 7 | 10 | 11 | 9 | 7 | 7 | 12 | 8 | 7 |
| 45 | 6 | 8 | 10 | 8 | 6 | 9 | 11 | 7 | 6 | 10 | 7 | 6 |
| 40 | 3 | 7 | 7 | 6 | 4 | 7 | 11 | 7 | 5 | 6 | 3 | 7 |
| Below 40 | 14 | 18 | 8 | 10 | 14 | 25 | 11 | 13 | 17 | 23 | 6 | 5 |
| | 1972 (N = 4,688) | | | | 1973 (N = 7,691) | | | | 1974 (N = 8,952) | | | |
| **Females** | | | | | | | | | | | | |
| 95 | 0 | 5 | 4 | 1 | 1 | 5 | 5 | 2 | 1 | 7 | 8 | 2 |
| 90 | 0 | 4 | 4 | 2 | 1 | 4 | 4 | 2 | 1 | 7 | 6 | 3 |
| 85 | 1 | 8 | 8 | 3 | 1 | 6 | 5 | 4 | 1 | 7 | 11 | 6 |
| 80 | 1 | 10 | 11 | 4 | 1 | 6 | 8 | 5 | 1 | 8 | 9 | 8 |
| 75 | 1 | 9 | 10 | 4 | 2 | 8 | 7 | 5 | 2 | 10 | 9 | 6 |
| 70 | 2 | 14 | 12 | 4 | 2 | 11 | 11 | 5 | 3 | 12 | 12 | 6 |
| 65 | 2 | 15 | 17 | 8 | 4 | 13 | 14 | 6 | 4 | 9 | 10 | 10 |
| 60 | 6 | 19 | 19 | 11 | 9 | 17 | 17 | 12 | 5 | 10 | 10 | 9 |
| 55 | 9 | 6 | 5 | 13 | 11 | 6 | 7 | 14 | 7 | 8 | 7 | 13 |
| 50 | 10 | 4 | 4 | 9 | 11 | 9 | 6 | 10 | 8 | 8 | 7 | 9 |
| 45 | 8 | 2 | 4 | 13 | 8 | 6 | 7 | 9 | 7 | 6 | 5 | 7 |
| 40 | 5 | 2 | 1 | 9 | 5 | 4 | 6 | 9 | 7 | 3 | 2 | 10 |
| Below 40 | 55 | 2 | 1 | 19 | 44 | 5 | 3 | 17 | 43 | 5 | 4 | 11 |

Prior to analysis of the 1972–1974 female accession data shown in Table 6, note should be taken of the fact that procurement policy for enlisting women in the Air Force was changed in this time period. Normally, the vast majority of female accessions are recruited for the Administrative and General aptitude areas and for jobs traditionally held by women. Studies dealing with the characteristics of an all-volunteer force highlighted the need and value of expanded utilization of women in career areas heretofore male oriented. By 1974, recruiters were being tasked to enlist women in the four aptitude areas in the following proportions: 25 percent for Mechanical, 25 percent for Electronics, and the remaining 50 percent to the Administrative and General areas.

Inspection of the data of Table 6 (Vitola & Wilbourn, 1971) reveal that in the all-volunteer force the aptitude of women enlisted for the General and Administrative areas has declined slightly, possibly because of the shift in procurement strategy from the General/Administrative to the Mechanical/Electronics areas. However, the 1973–1974 total sample data show that women continue to display higher average aptitude

potential in the Administrative and General areas than do males. In the Mechanical area an increase in aptitude potential of women enlisting in the volunteer force for the 1973 period was evidenced. An increase in the Electronics aptitude level was found both in 1973 and 1974. The extent of the increase of female aptitude levels in the Mechanical and Electronics areas is delineated in Table 7.

As indicated by the data from AFM 35-1 (Change 1, Table 5-2, 25 October 1974) there are mandatory aptitude scores required for the 34 and 29 possible career field/subdivision assignments in the Mechanical and Electronics areas, respectively. In the Mechanical area, 17 of these assignments require an M40, 14 an M50, and 3 an M60. In the Electronics area, 6 require an E40, 6 and E50, 10 an E60, 1 an E70, and 6 an E80.

The data from Table 7 concerning female aptitude indexes for the 1972 through 1974 time period show that prior to the all-volunteer Air Force, 45 percent of female accessions were qualified for assignment in the Mechanical area. In 1973 and 1974, that percent increased to 56 percent and 57 percent, respectively. At the M50 and above index, which would account for 17 of the 34 possible career field/subdivision assignments, the proportion of all-volunteer force female enlistees exceeded the proportion of 1972 female enlistees at those index levels. In the Electronics index, especially for the E60 and above levels which account for 17 of the 29 possible assignments, similar trends occur. These data dispel the notion that in an all-volunteer force posture, Air Force would experience difficulty in recruiting women who were qualified for the Mechanical and Electronics job areas. Further research should be done to follow the technical training and job performance experiences of first-term women enlistees and make comparisons of their modes of adaptation to Air Force life with those of their male contemporaries.

The data from Table 8 show the cumulative percentages of males and females on the four aptitude composites of the AQE and ASVAB (1974). Summarily, the data suggest that for the two-year period of

*Table 8.* **Cumulative Percentages of AQE/ASVAB Aptitude Index Levels for Air Force Enlistees, 1972 – 1974**

| AQE/ASVAB Aptitude Index | Percentage in Score Range on AQE/ASVAB Composites | | | | | |
|---|---|---|---|---|---|---|
| | Males | | | Females | | |
| | 1972 % | 1973 % | 1974 % | 1972 % | 1973 % | 1974 % |
| **Mechanical** | | | | | | |
| 80 and above | 23 | 22 | 24 | 2 | 4 | 4 |
| 60 and above | 55 | 54 | 56 | 13 | 21 | 17 |
| 40 and above | 86 | 86 | 83 | 45 | 56 | 57 |
| **Administrative** | | | | | | |
| 80 and above | 18 | 12 | 12 | 27 | 21 | 29 |
| 60 and above | 48 | 41 | 40 | 84 | 70 | 70 |
| 40 and above | 82 | 75 | 77 | 98 | 95 | 95 |
| **General** | | | | | | |
| 80 and above | 23 | 18 | 28 | 27 | 22 | 34 |
| 60 and above | 59 | 50 | 67 | 85 | 71 | 75 |
| 40 and above | 92 | 89 | 94 | 99 | 97 | 96 |
| **Electronics** | | | | | | |
| 80 and above | 31 | 25 | 30 | 10 | 13 | 19 |
| 60 and above | 58 | 53 | 64 | 37 | 41 | 50 |
| 40 and above | 90 | 87 | 95 | 31 | 83 | 89 |

recruitment effort, without benefit of the draft as an enlistment motivator, Air Force has not experienced a drop in quality among first-term accessions. Most dramatic has been the rise in the proportion of females demonstrating aptitude potential in various levels of the Mechanical and Electronics areas.

**Accessions by Educational Level**

Number of years of formal education completed or educational level is a valid predictor of capability to be trained and degree of adaptability to Air Force life. Table 9 shows distributions of educational levels of male and female enlistees for 1972 through 1974.

A comment should be made concerning the educational levels of the 1974 male and female accessions. In the May – December time period, format changes to the personnel files resulted in an unusually high rate of incomplete data. Five percent of the male and female educational data files were incomplete. Discussion centering around the 1974 data should be considered tentative rather than absolute.

*Table 9.* **Distribution of Educational Levels for Air Force Enlistees, 1972 – 1974**

| Years Schooling Completed | Number and Percent for Educational Level | | | | | |
|---|---|---|---|---|---|---|
| | 1972 | | 1973 | | 1974 | |
| | N | % | N | % | N | % |
| **Males** | | | | | | |
| 16 or more | 1,573 | 2 | 824 | 1 | 747 | 1 |
| 13–15 | 8,095 | 10 | 4,201 | 6 | 2,357 | 4 |
| 12 | 60,967 | 75 | 58,741 | 82 | 54,206 | 84 |
| 11 or less | 10,926 | 13 | 7,995 | 11 | 3,927 | 6 |
| Incomplete Data | 2 | 0 | 1 | 0 | 3,168* | 5 |
| Total | 81,563 | 100 | 71,762 | 100 | 64,405 | 100 |
| **Females** | | | | | | |
| 16 or more | 64 | 1 | 177 | 2 | 207 | 2 |
| 13–15 | 371 | 8 | 633 | 8 | 506 | 6 |
| 12 | 4,246 | 91 | 6,868 | 90 | 7,556 | 85 |
| 11 or less | 7 | 0 | 13 | 0 | 194 | 2 |
| Incomplete Data | 0 | 0 | 0 | 0 | 489 | 5 |
| Total | 4,688 | 100 | 7,691 | 100 | 8,952 | 100 |
| **Total Accessions** | | | | | | |
| 16 or more | 1,637 | 2 | 1,001 | 1 | 954 | 1 |
| 13–15 | 8,466 | 10 | 4,834 | 6 | 2,863 | 4 |
| 12 | 65,213 | 76 | 65,609 | 83 | 61,762 | 84 |
| 11 or less | 10,933 | 12 | 8,008 | 10 | 4,121 | 6 |
| Incomplete Data | 2 | 0 | 1 | 0 | 3,657* | 5 |
| Total | 86,251 | 100 | 79,453 | 100 | 73,357 | 100 |

*In the May–December time period, format changes to the personnel files resulted in an unusually high rate of incomplete data.

As was expected, there was a downward shift in the levels of education in the 1972 through 1974 time period among the male accessions who had completed education beyond the high school level. The data also indicated a loss of male enlistees having less than a high school education. Overall, the proportion of male enlistees in the all-volunteer force having completed at least a high school education (89 percent) indicates that, in terms of trainability and adaptation to military life, Air Force should not experience any more unsuitability problems than were encountered in 1972.

Inspection of the female data for the three-year period leads to the obvious conclusion that Air Force did not experience any difficulty during 1973 and 1974 in enlisting women with formal education beyond the high school level. The rationale for enlisting about two percent of the 1974 female accessions having less than a high school education was on the basis that most of these young ladies qualified on the General index and either the Mechanical or Electronics index.

It is apparent that although Air Force recruits from the mid-range of the aptitude spectrum, there are a sufficient number of qualified men and women in the job-market pool who find the prospect of a career in the United States Air Force interesting.

**Geographic Area of Enlistment**

Since 1958, Air Force has had a recruiting program which permitted selection on the basis of aptitude and educational levels of potential enlistees. In 1960, Flanagan et al., published the results of a massive study called Project TALENT in which an extensive test battery was administered to more than 400,000 high school age boys and girls to obtain an indication of their aptitudes, interests, and personality characteristics. In 1962, Daily et al., reported procedures by which Air Force aptitude indexes were calibrated to Project TALENT norms, thus allowing Air Force to pulse the aptitude levels of the younger portion of the general population. In essence, based on the market analysis of aptitudinal and educational levels of the population at-large and population density data, Air Force was able to develop a systems approach to establishing enlistment standards and determining enlistment quotas for each area of the United States. In the decade which followed 1965, selection and classification measures were refined to indicate more accurately the potential of its enlistees to be trained for various specialties within the Air Force personnel system. It is assumed, since Air Force tests are normed and calibrated against Project TALENT, that the aptitude potential demonstrated by those young men and women who enlist in the Air Force is a representative sample of the aptitude potential of their contemporaries in the population-at-large.

Tables 10 and 11 indicate the geographic sources of input for males and females for 1974. The data show average test performance on the ASVAB within racial subgroups by geographic area of enlistment. Each area (1–7) corresponds to an Air Force recruiting group. The geographic areas are designated as follows:

Area 1. Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York.

Area 2. New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, District of Columbia.

Area 3. North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee.

Area 4. Arkansas, Louisiana, Oklahoma, New Mexico, Texas, Arizona.

Area 5. Ohio, Indiana, Michigan, Illinois, Kentucky.

Area 6. Washington, Oregon, California, Nevada, Idaho, Montana, Utah, Alaska, Hawaii.

Area 7. Missouri, Iowa, Minnesota, North Dakota, South Dakota, Kansas, Nebraska, Colorado, Wyoming, Wisconsin.

Area 8. Other than Areas 1 through 7.

Federally accepted two-letter state abbreviations were used in Tables 10 and 11.

*Table 10.* **Descriptive Statistics of ASVAB Composites for Male Enlistees by Racial Subgroup and Enlistment Region (1974)[a]**

| Enlistment Region | Black | | | Non-Black | | | Total Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Mechanical** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 1,036 | 38 | 18 | 7,116 | 62 | 21 | 8,152 | 59 | 22 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 1,818 | 40 | 17 | 6,053 | 62 | 20 | 7,871 | 57 | 22 |
| 3. NC, SC, GA, FL, AL, MS, TN | 3,886 | 43 | 18 | 7,093 | 62 | 19 | 10,979 | 55 | 21 |
| 4. AR, LA, OK, NM, TX, AZ | 1,918 | 43 | 17 | 7,010 | 62 | 19 | 8,928 | 58 | 20 |
| 5. OH, IN, MI, IL, KY | 1,471 | 43 | 18 | 8,944 | 65 | 19 | 10,415 | 61 | 21 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 744 | 45 | 18 | 9,677 | 64 | 20 | 10,421 | 63 | 20 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 446 | 50 | 17 | 6,630 | 67 | 19 | 7,076 | 66 | 20 |
| 8. Other | 24 | 46 | 19 | 344 | 48 | 19 | 368 | 48 | 19 |
| Incomplete Data | 32 | – | – | 163 | – | – | 195 | – | – |
| Total | 11,375 | 44 | 18 | 53,030 | 62 | 20 | 64,405 | 60 | 21 |
| **Administrative** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 1,036 | 43 | 17 | 7,116 | 54 | 19 | 8,152 | 53 | 19 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 1,818 | 43 | 18 | 6,053 | 57 | 20 | 7,871 | 54 | 20 |
| 3. NC, SC, GA, FL, AL, MS, TN | 3,886 | 48 | 20 | 7,093 | 59 | 20 | 10,979 | 57 | 21 |
| 4. AR, LA, OK, NM, TX, AZ | 1,918 | 41 | 18 | 7,010 | 52 | 19 | 8,928 | 49 | 19 |
| 5. OH, IN, MI, IL, KY | 1,471 | 47 | 19 | 8,944 | 53 | 19 | 10,415 | 52 | 19 |
| 6. WA, OR, CA, NV, ID, MT, VT, AK, HI | 744 | 47 | 18 | 9,677 | 52 | 19 | 10,421 | 51 | 19 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 446 | 51 | 18 | 6,630 | 58 | 20 | 7,076 | 57 | 18 |
| 8. Other | 24 | 57 | 17 | 344 | 56 | 20 | 368 | 56 | 19 |
| Incomplete Data | 32 | – | – | 163 | – | – | 195 | – | – |
| Total | 11,375 | 46 | 19 | 53,030 | 55 | 20 | 64,405 | 53 | 20 |
| **General** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 1,036 | 63 | 17 | 7,116 | 69 | 17 | 8,152 | 66 | 17 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 1,818 | 59 | 17 | 6,053 | 69 | 17 | 7,871 | 66 | 17 |
| 3. NC, SC, GA, FL, AL, MS, TN | 3,886 | 59 | 16 | 7,093 | 69 | 16 | 10,979 | 65 | 17 |
| 4. AR, LA, OK, NM, TX, AZ | 1,918 | 57 | 17 | 7,010 | 65 | 18 | 8,928 | 63 | 18 |
| 5. OH, IN, MI, IL, KY | 1,471 | 60 | 17 | 8,944 | 65 | 18 | 10,415 | 65 | 18 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 744 | 57 | 17 | 9,677 | 64 | 18 | 10,421 | 63 | 18 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 446 | 60 | 18 | 6,630 | 67 | 17 | 7,076 | 67 | 18 |
| 8. Other | 24 | 64 | 19 | 344 | 60 | 17 | 368 | 60 | 17 |
| Incomplete Data | 32 | – | – | 163 | – | – | 195 | – | – |
| Total | 11,375 | 59 | 17 | 53,030 | 66 | 18 | 64,405 | 65 | 18 |
| **Electronics** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 1,036 | 57 | 17 | 7,116 | 69 | 18 | 8,152 | 67 | 18 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 1,818 | 54 | 16 | 6,053 | 68 | 17 | 7,871 | 65 | 18 |
| 3. NC, SC, GA, FL, AL, MS, TN | 3,886 | 53 | 16 | 7,093 | 70 | 17 | 10,979 | 63 | 18 |
| 4. AR, LA, OK, NM, TX, AZ | 1,918 | 54 | 15 | 7,010 | 66 | 17 | 8,928 | 63 | 17 |
| 5. OH, IN, MI, IL, KY | 1,471 | 55 | 17 | 8,944 | 67 | 17 | 10,415 | 65 | 18 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 744 | 54 | 17 | 9,677 | 66 | 18 | 10,421 | 65 | 18 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 446 | 54 | 15 | 6,630 | 69 | 17 | 7,076 | 68 | 18 |
| 8. Other | 24 | 60 | 18 | 344 | 60 | 17 | 368 | 60 | 17 |
| Incomplete Data | 32 | – | – | 163 | – | – | 195 | – | – |
| Total | 11,375 | 54 | 16 | 53,030 | 67 | 18 | 64,405 | 65 | 18 |

[a]Means and standard deviations have been rounded to nearest whole number.

*Table 11.* **Descriptive Statistics of ASVAB Composites for Female Enlistees by Racial Subgroup and Enlistment Region (1974)[a]**

| Enlistment Region | Black | | | Non-Black | | | Total Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| **Mechanical** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 168 | 17 | 13 | 1,023 | 32 | 17 | 1,191 | 30 | 18 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 221 | 21 | 14 | 925 | 33 | 18 | 1,146 | 30 | 18 |
| 3. NC, SC, GA, FL, AL, MS, TN | 518 | 28 | 18 | 992 | 37 | 18 | 1,510 | 35 | 18 |
| 4. AR, LA, OK, NM, TX, AZ | 260 | 30 | 20 | 888 | 34 | 18 | 1,148 | 33 | 18 |
| 5. OH, IN, MI, IL, KY | 217 | 26 | 20 | 1,291 | 33 | 16 | 1,508 | 32 | 17 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 104 | 28 | 17 | 1,229 | 36 | 18 | 1,333 | 35 | 17 |
| 7. MD, IA, MN, ND, SD, KS, NE, CO, WY, WI | 56 | 21 | 17 | 1,010 | 35 | 17 | 1,066 | 35 | 17 |
| 8. Other | 3 | 18 | 5 | 32 | 29 | 18 | 35 | 28 | 18 |
| Incomplete Data | 2 | – | – | 13 | – | – | 15 | – | – |
| Total | 1,549 | 26 | 18 | 7,403 | 34 | 17 | 8,952 | 33 | 18 |
| **Administrative** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 168 | 55 | 18 | 1,023 | 67 | 17 | 1,191 | 65 | 17 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 221 | 60 | 18 | 925 | 70 | 17 | 1,146 | 68 | 18 |
| 3. NC, SC, GA, FL, AL, MS, TN | 518 | 60 | 18 | 992 | 72 | 17 | 1,510 | 68 | 18 |
| 4. AR, LA, OK, NM, TX, AZ | 260 | 56 | 17 | 888 | 65 | 17 | 1,148 | 63 | 18 |
| 5. OH, IN, MI, IL, KY | 217 | 62 | 17 | 1,291 | 67 | 17 | 1,508 | 66 | 17 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 104 | 61 | 17 | 1,229 | 66 | 17 | 1,333 | 66 | 17 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 56 | 62 | 18 | 1,010 | 71 | 16 | 1,066 | 70 | 17 |
| 8. Other | 3 | 60 | 11 | 32 | 64 | 21 | 35 | 64 | 20 |
| Incomplete Data | 2 | – | – | 13 | – | – | 15 | – | – |
| Total | 1,549 | 59 | 18 | 7,403 | 68 | 17 | 8,952 | 67 | 17 |
| **General** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 168 | 63 | 18 | 1,023 | 72 | 15 | 1,191 | 70 | 16 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 221 | 64 | 15 | 925 | 72 | 15 | 1,146 | 70 | 15 |
| 3. NC, SC, GA, FL, AL, MS, TN | 518 | 62 | 14 | 992 | 72 | 15 | 1,510 | 68 | 15 |
| 4. AR, LA, OK, NM, TX, AZ | 260 | 62 | 14 | 888 | 69 | 16 | 1,148 | 67 | 16 |
| 5. OH, IN, MI, IL, KY | 217 | 65 | 16 | 1,291 | 69 | 16 | 1,508 | 69 | 16 |
| 6. WA, OR, CA, NV, ID, MT, UT, AK, HI | 104 | 66 | 16 | 1,229 | 71 | 16 | 1,333 | 70 | 16 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 56 | 63 | 15 | 1,010 | 68 | 16 | 1,066 | 69 | 16 |
| 8. Other | 3 | 52 | 14 | 32 | 65 | 14 | 35 | 64 | 15 |
| Incomplete Data | 2 | – | – | 13 | – | – | 15 | – | – |
| Total | 1,549 | 63 | 15 | 7,403 | 70 | 16 | 8,952 | 69 | 16 |
| **Electronics** | | | | | | | | | |
| 1. ME, NH, VT, MA, CT, RI, NY | 168 | 43 | 16 | 1,023 | 58 | 18 | 1,191 | 56 | 19 |
| 2. NJ, PA, DE, MD, WV, VA, DC | 221 | 47 | 17 | 925 | 59 | 19 | 1,146 | 57 | 19 |
| 3. NC, SC, GA, FL, AL, MS, TN | 518 | 48 | 17 | 992 | 62 | 18 | 1,510 | 57 | 19 |
| 4. AR, LA, OK, NM, TX, AZ | 260 | 49 | 17 | 888 | 59 | 18 | 1,148 | 57 | 18 |
| 5. OH, IN, MI, IL, KY | 217 | 50 | 19 | 1,291 | 58 | 18 | 1,508 | 57 | 18 |
| 6. WA, OR, CA, NV, ID, MT UT, AK, HI | 104 | 52 | 18 | 1,229 | 60 | 18 | 1,333 | 59 | 18 |
| 7. MO, IA, MN, ND, SD, KS, NE, CO, WY, WI | 56 | 47 | 17 | 1,010 | 60 | 17 | 1,066 | 59 | 18 |
| 8. Other | 3 | 48 | 2 | 32 | 50 | 20 | 35 | 50 | 19 |
| Incomplete Data | 2 | – | – | 13 | – | – | 15 | – | – |
| Total | 1,549 | 48 | 17 | 7,403 | 59 | 18 | 8,952 | 57 | 18 |

[a]Means and standard deviations have been rounded to nearest whole number.

**Geographic Aptitudes of Males**

Using the total sample, inspection of the data from Table 10 indicate that with the exception of the Administrative area, enlistees from Area 7 (the Middle West) obtained a higher mean score average level across all aptitude indexes than did subjects from any other area in 1974. This same phenomena has occurred each year since 1970 (Vitola & Valentine, 1971). There were no accessions from any particular area who scored consistently low across all aptitude indexes. In 1972, enlistees from Areas 3 and 4, regardless of race, consistently made lower average aptitude scores on all four indexes than did enlistees from other regions (Vitola, Mullins, & Brokaw, 1974).

Regardless of current recruiting climate, it is necessary to have knowledge of aptitude potential by source of input and by racial subgroup composition. Results of studies done in the past indicated definite geographic patterns of aptitudes by racial subgroup and by total sample (Vitola & Valentine, 1971; Vitola, Mullins, & Brokaw, 1974). Pre-volunteer force studies indicated that on the Mechanical, General, and Electronics composites, male subjects from Areas 5, 6, and 7 performed at a higher average aptitude level than did subjects from Areas 1 through 4. This phenomenon obtained across racial subgroups. In addition, Areas 3 and 4, regardless of race, were consistently at the lowest end of the aptitude spectrum. Inspection of the data of Table 10 indicates many shifts have occurred in the 1972–1974 time period. Although enlistees (total sample) from Areas 5, 6, and 7 still demonstrate the highest aptitude capabilities on the Mechanical aptitude composite, Blacks in Areas 3 and 4 scored as well or higher than Blacks in Areas 1, 2, 5, and 7. In addition, non-Blacks in Areas 3 and 4 scored as well as non-Blacks in Areas 1 and 2.

On the Administrative composite, regardless of race, enlistees from Area 3 demonstrated aptitude capabilities which surpassed the aptitude capabilities of all areas except Area 7 (in the total sample). Enlistees from Areas 5, 6, and 7 did not demonstrate aptitudes surpassing those of enlistees from Areas 1 through 4.

Usually, enlistees from Areas 1 and 2 score at the relatively high end of the General and Administrative aptitude scale (Vitola & Valentine 1971; Vitola, Mullins, & Croll, 1973). This phenomenon continued in 1974. Noticeable is the gain in demonstrated aptitude by the enlistees from Area 3; usually at the low end of the General aptitude continuum.

Worthy of mention are one or two shifts in demonstrated Electronics aptitude by the enlistees from Areas 1 and 3. In the past, regardless of race, enlistees from Areas 5 through 7 averaged higher Electronic scores than enlistees from Area 1. In 1974, Area 1 enlistees demonstrated slightly more Electronics potential than 5 other areas. In addition, the non-Blacks from Area 3 showed the greatest potential of any of the seven areas.

In summary, the geographic pattern of aptitude potential by racial subgroup and by total sample has changed for males enlisting in the all-volunteer force from those of males enlisting under the Selective Service Lottery System. It appears that the present level and geographic distribution of demonstrated capabilities gives Air Force greater flexibility in the classification and assignment process under the all-volunteer concept than it had during the pre-volunteer period.

**Geographic Aptitudes of Females**

Table 11 shows the average scores for females on the ASVAB composites for racial subgroups by enlistment region. Since some of the racial subgroup populations by geographic area are small, discussion of comparisons between geographic areas will be based on total sample only.

Apparently, female enlistees do not follow the same patterns of aptitude potential in the Mechanical area as do males. Area 3 enlistees (South) demonstrated average scores as high or higher than enlistees from the other six areas. As it was with male enlistees, Areas 6 and 7 remain sources of high quality input.

Data prior to 1973 indicate that the highest quality input into the Administrative and General areas was recruited from the East Coast (Areas 1 and 2). This trend continued in 1974 for the General aptitude composite. However, it was not evident for the Administrative composite. Area 3 and Area 7 female enlistees demonstrated Administration aptitude potential greater than Area 1 enlistees. Noteworthy of mention is the fact that Area 3 with the high Administrative quality also inputted the greatest number of female enlistees in 1974.

Previous to all-volunteer force enlistment, the geographic pattern of average scores on the Electronics composite were in the following rank order: Areas 7 and 6 were equal; then Areas 5, 1, 2, 4, and 3. Inspection of Table 11 data indicate a shift in that pattern. Areas 6 and 7 are equally ranked followed by an equal ranking of Areas 2, 3, 4, and 5. Area 1 is ranked last.

Overall, it appears that recruiters from the 3503rd and 3504th Groups have taken vigorous action to enlist females and males with average aptitudes equal to or greater than the average aptitudes of enlistees from other geographic regions.

## IV. CONCLUSION

The purpose of this study was to assess the characteristics of males and females enlisting in 1973 and 1974 and to determine if the removal of draft pressure has had an appreciable effect on the quality of personnel enlisting in the all-volunteer Air Force. Accession data for 1972 through 1974 were presented on males and females across various dimensions of race, mental ability, aptitude, education, and geographic area of enlistment.

Analysis of the data of this study lead to the following conclusions:

1. Air Force continues to be an equal opportunity employer. Even in a "buyer's market" climate where it was predicted that Blacks might not be competitive, the Air Force has increased the proportion of Black enlistees from 13 percent in 1972 to 15 and 18 percent in 1973 and 1974.

2. Regardless of race or sex, Air Force enlists rather young individuals who are less talented than their older enlistee peers. The all-volunteer Air Force is not creating a skill "man-drain" in the civilian industrial complex. In fact, in view of the current high unemployment rate among 17 through 19 year-olds, Air Force is enlisting unemployed and unskilled personnel and, after four years, returns them to the civilian manpower pool as skilled employees for the civilian work force.

3. The distribution of educational levels for the total accessions in 1973 and 1974 indicates a moderate gain in terms of a greater percentage having completed at least a high school education. Among male enlistees, there has been an appreciable loss of males who have completed more than 12 years of education; in 1972 the percentage was 12 percent; in 1973, 7 percent; and in 1974, 5 percent. No change in the percentage of women at the higher educational levels occurred during the 1972–1974 time period. Looking at the other end of the educational spectrum, among male enlistees and in the total accessions sample, there has been a substantial decrease of percent of enlistees having less than a high school education. Of the total accessions in 1972, there were 12 percent; in 1973, 10 percent; and in 1974, about 6 percent.

4. In general, regardless of race or sex, the removal of draft pressure has not adversely affected the quality of individuals enlisting in the Air Force. Compared to the aptitudes of the 1972 population, Black and non-Black females demonstrate higher average aptitudes in the Electronics area. Although the average Mechanical Aptitude of females (both Black and non-Black) show a slight decrease from 1972 to 1974, the overall percentage of females achieving a Mechanical index of 40 or above has increased. These phenomena are probably a function of a change in recruiting policy to enlist an increasing number of females in the Mechanical and Electronics career fields. Black males in the 1973–1974 accession population demonstrate average aptitude scores equal to or greater than Black males enlisting in 1972. The total male sample (as well as the non-Black male sample) show a moderate loss of quality in the Administrative area and moderate gains of average aptitude in the critical areas of assignment, the General and Electronics areas.

5. There has been a deviation from the 1972 geographic pattern of aptitude levels to the extent that enlistees from Areas 3 and 4 no longer consistently demonstrate lower average aptitude levels than other regions of the country. In fact, enlistees to be assigned to the Administrative area might be recruited from the South.

It is recognized that new and more stringent enlistment standards will prevail in calendar year 1975, which will change the characteristics of first year accessions. In addition, the collapse of recruiting groups from seven to five will impact on analyses of accessions by geographic area of enlistment. Research should be conducted to evaluate the new enlistment standards and the dynamics of varying these standards, if necessary, in the future.

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